REMARKS/ARGUMENTS

Claims 1-17 are pending. The term "binaphtyl" has been retained in the claims because this term and the term "binaphthyl" mean the same thing and are used interchangeably. For example, see U.S. Patent Nos. 6,610,216, 5739372 and 4605750.

Claims 1 and 4 are amended to clarify that Ar^1 and Ar^2 can be polycyclic aromatic hydrocarbons. Support for these amendments is found in paragraph [0020] and the list of binaphtyl derivatives shown on pages 8-11. Accordingly, no new matter is added.

Claim 6 is amended to clarify the initial scope of the claim without changing scope that a fluorescent dye comprises a binaphtyl compound of claim 1. Claim 15 is amended to clarify that the claim depends from claim 14. This addresses the 35 USC § 112 rejections.

Rejections under 35 USC § 102

The rejection of claims 1, 4, 5, 7, 8 and 10 as anticipated by Ostrowski et al. (Chem. Eur. J., 2001) is respectfully traversed.

"To anticipate a claim, the reference must teach every element of the claim." MPEP § 2131. In the present case, the reference does not meet this standard.

Claims 1, 4, 5, 7, 8 and 10 call for a binaphtyl compound in which Ar^1 and Ar^2 are bound to the binaphtyl core. As is clear from the formula in claim 1 and the representative compounds in the specification, Ar^1 and Ar^2 are bound to the binaphtyl core either directly, without a connecting group (n^1 and $n^2 = 0$), or through X^1 and X^2, which are aromatic hydrocarbons. In contrast, the cited 5Hex compound contains an aromatic group connected to a binaphtyl core by an aliphatic ethenyl linkage, not by an aromatic hydrocarbon. Because all claim elements are not taught, claims 1, 4-8 and 10 are not anticipated.

As amended, claims 1, 4, 5, 7, 8 and 10 call for a binaphtyl compound in which Ar^1 and Ar^2 are polycyclic aromatic hydrocarbons. None of the compounds taught or suggested by Ostrowski et al. contain a polycyclic aromatic hydrocarbon bound to a binaphtyl core. At most, Ostrowski et al. teach in Scheme 1 compounds containing monocyclic aromatic hydrocarbons bound to a binaphtyl core. Because polycyclic groups are not taught or suggested by Ostrowski et al., claims 1, 4, 5, 7, 8 and 10 are not anticipated.

The rejection of claims 1, 6-8, 10, 11 and 16 as anticipated by U.S. Patent Number 6,656,608 to Kita et al. is respectfully traversed.

Kita et al. teach that R_{91} and R_{92} can be aryloxy groups. As is well known, an aryloxy group is a radical formed by removing the hydroxide hydrogen from an aromatic alcohol. For example, removal of the hydrogen from the aromatic alcohol phenol (PheOH) gives rise to the phenoxy radical PheO-. Binding of an aryloxy group occurs through the oxygen. Thus, Kita et al. would be understood as describing an aromatic group connected to a binaphtyl core via an oxygen linkage. In contrast, claims 1, 6-8, 10, 11 and 16 call for a binaphtyl compound in which Ar^1 and Ar^2 are bound to the binaphtyl core either directly, without a connecting group (n^1 and n^2

= 0), or through X^1 and X^2, which are aromatic hydrocarbons, not oxygen atoms. Because all claim elements are not taught by Kita et al., claims 1, 6-8, 10, 11 and 16 are not anticipated.

Rejections under 35 USC § 103(a)

The rejection of claims 1, 3 and 9 as obvious over Kita et al. is respectfully traversed.

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." *In re Royka*, 490 F. 2d 981, 180 USPQ 580 (CCPA 1974); MPEP § 2143.03. In the present case, the prior art does not meet this standard.

Claims 1, 3 and 9 call for a binaphtyl compound in which Ar^1 and Ar^2 are bound to the binaphtyl core either directly, without a connecting group (n^1 and $n^2 = 0$), or through X^1 and X^2, which are aromatic hydrocarbons. As pointed out above, Kita et al. do not teach such a compound. Rather, Kita et al. teach a binaphtyl compound having an alkoxy group connected to the binaphtyl core via the reactive oxygen of the alkoxy moiety. Kita et al. do not teach or even mention that R_{91} and R_{92} can be aromatic groups attached to the binaphtyl core via other types of linkages. Because Kita et al fail to teach or suggest all claim limitations, claims 1, 3 and 9 are not obvious.

Regarding claim 3, Kita et al. indicate that R_{91} and R_{92} can each form a condensed structure when n and m are greater than 1, but only when two R groups are at adjacent positions (col. 9, ln. 61-65). In such an arrangement, the two R groups must each connect to the binaphtyl core, forming a condensed structure attached to the binaphtyl core by two bonds. This is shown, for example, in the compounds depicted at column 12, lines 1-5. In contrast, X^1 and X^2 in claim 3 are each connected to a binaphtyl core via a single bond. Because Kita et al. do not teach or suggest a condensed structure connected by only a single bond, claim 3 is not obvious.

The Kita et al. Reference

Applicants submit that none of the claims are anticipated or made obvious by Kita et al. Formula G2 of the Kita et al. reference is a generic chemical formula. A generic formula does not necessarily anticipate or render obvious a claimed species. MPEP § 2131, § 2144.08. To derive the claimed compounds from formula G2, it is necessary to select portions of the teachings in the reference and combine them. In such circumstances, a generic formula will anticipate a claimed species covered by the formula only when the claimed species is "at once envisaged" from the formula. MPEP § 2131.02. In the present case, none of the claimed species are "at once envisaged" from formula G2 of Kita et al.

Formula G2 contains R_{91} and R_{92} groups. As indicated in the Kita et al. reference (col. 6, ln. 1-25), the groups can be located at any position on two of the binaphtyl rings. Because each R group can be located at one of four positions, there are sixteen (4 X 4) possible arrangements for the two R groups taken together. However, claims 1-17 of the present application concern compounds having two comparable groups (XnAr) in one specific arrangement. Therefore, only 1 of the sixteen possible arrangements is claimed in the present application.

Furthermore, each of the R_{91} and R_{92} groups can be any of a vast number of moieties. Kita et al. provide a non-exclusive list of 20 moieties (col. 9, ln. 50-60). Although a heterocyclic group is included in this list, there are an additional 19 other identified groups. Because R_{91} and R_{92} may be the same or different (col. 6, ln. 32), there are 400 (20 X 20) possible combinations of R_{91} and R_{92}, only one of which is a combination of two heterocyclic groups. This means that the compounds called for in claims 1-17, which have two (X)nAr groups located at specific positions, represent at best only one out of a possible 6400 species (16 possible arrangements X 400 possible moieties).

In addition, Kita et al. indicate that when the R_{91} and R_{92} groups are placed adjacent to each other, the groups can condense to form a ring structure. This further increases the total number of species encompassed by formula G2.

The compounds called for in claims 1-17 represent only one out of over 6400 possible species included under the generic formula G2. The large number of possible species means that any particular species, such as that called for in claims 1-17, is not "at once envisioned" from formula G2. Moreover, with so many possible species to choose from, the particular species called for in any of claims 1-17 is not obvious.

Applicants note that none of the many examples provided by Kita et al. show a binaphtyl structure with aromatic groups arranged in the specific manner called for in claims 1-17. Therefore, nothing in the Kita et al. reference teaches or suggests the subject matter of the claims.

Formula G2 of Kita et al. is a generic formula that covers over 6400 possible types of structures, only one of which represents the compounds called for in claims 1-17. Because nothing in the Kita et al. reference teaches or suggests the structures called for in the claims, claims 1-17 are neither anticipated nor obvious.

The issue of the provisional double-patenting rejection will be addressed at a later date.

In view of the foregoing amendments and remarks, Applicants submit that the present claims are in condition for allowance. Reconsideration of the application is therefore respectfully requested.

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